

# Snubber Braking Kits for AC Drives

## Enclosed Resistor Modules, Enclosed Transistor Modules

Model Numbers  
M3575RH\_\_\_, M3575RL\_\_\_, M3575TH\_\_\_, M3575TL\_\_\_

### Instruction Manual D2-3439-1



**ATTENTION:** Only qualified electrical personnel familiar with the construction and operation of this equipment and the hazards involved should install, adjust, operate, and/or service this equipment. Read and understand this manual and other applicable manuals in their entirety before proceeding. Failure to observe this precaution could result in severe bodily injury or loss of life.

## Product Description

Snubber Braking kits connect to 230 VAC and 460 VAC GV3000/SE, SP120, SP500, and VSM500 drives. These kits dissipate the power regenerated by the motor during rapid deceleration or during overhauling load conditions.

The regenerated energy is normally consumed, as shown in figure 1, by mechanical loss, by the motor, and by the drive. The remaining energy is stored in the drive's DC bus capacitor. If the remaining energy causes the capacitor voltage to rise above the normal operating range, the Braking Unit will discharge the regenerated energy before the drive voltage becomes excessive.

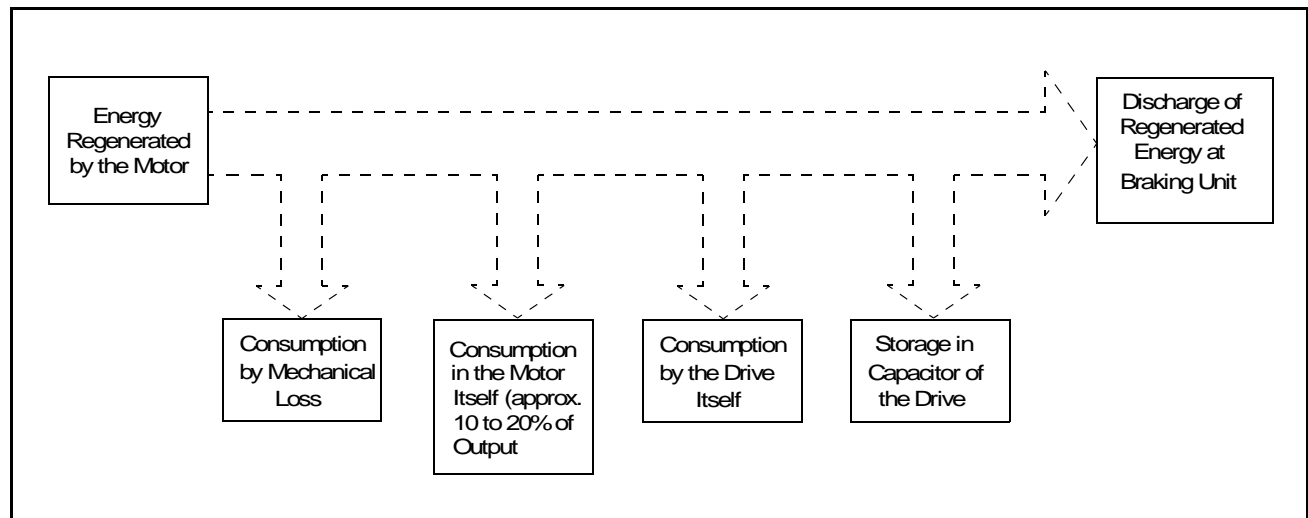


Figure 1 – Dissipation of Energy Regenerated by the Motor

Power resistors are used to dissipate the energy. When the DC bus voltage rises above normal level, either a built-in transistor (in GV3000/SE bookshelf drives) or an external transistor (used with NEMA-type GV3000/SE, SP500, and VSM500 drives) automatically switches the dynamic braking resistors on in pulse-width-modulation (PWM) mode to absorb the excess energy. The transistor is turned fully on at 375 VDC for 230 VAC input drives and at 750 VDC for 460 VAC input drives. The snubber resistors are sized to provide the power dissipating capability required for the duty cycle of the application.

Snubber Braking kits are available:

- as an Enclosed Resistor module for use with an AC drive containing a built-in transistor switching circuit (such as the GV3000/SE Bookshelf AC drive) or for use in conjunction with an enclosed transistor module (M/N M3575T\_\_)
- as an Enclosed Transistor module (M/N M3575T\_\_) for use with AC drives that do not contain a built-in transistor switching circuit and for use with the enclosed resistor modules (M/N M3575R\_\_)

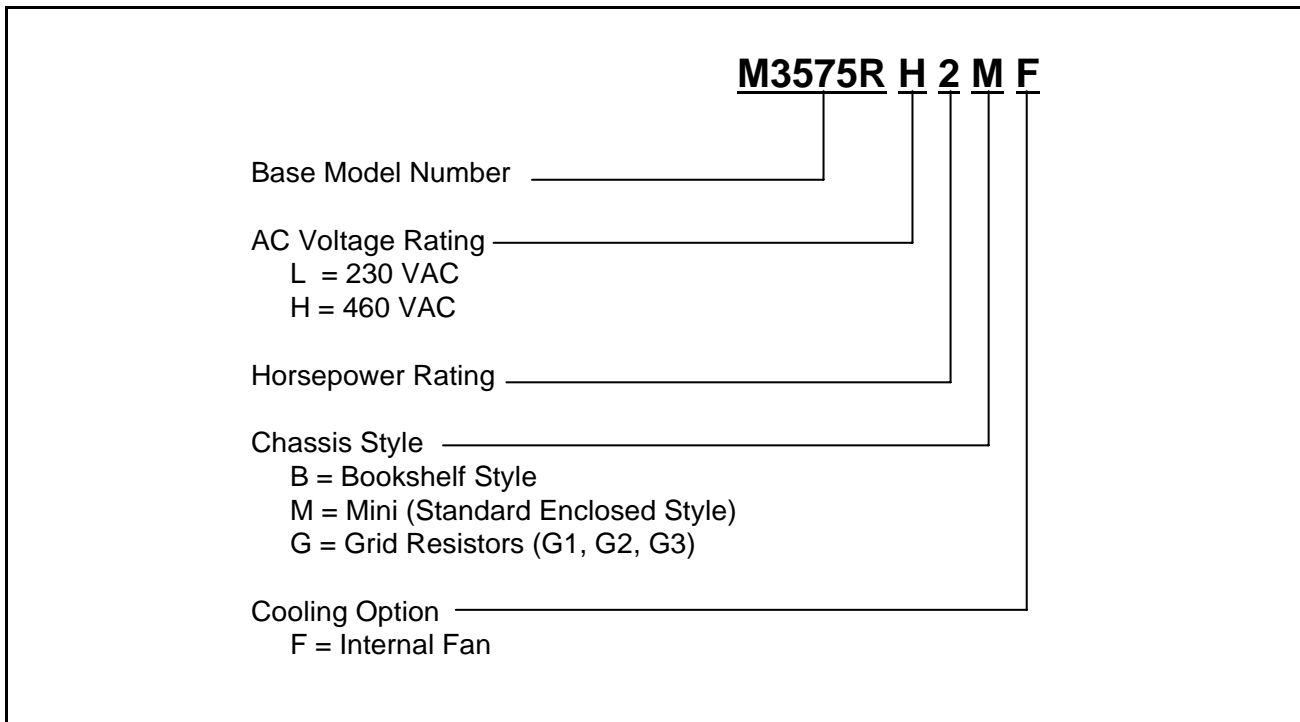
Note that all of the Enclosed Resistor modules and Enclosed Transistor modules are rated for a maximum on-time of 60 seconds at a specified duty cycle (see tables 1, 2, 5 and 6).

**For GV3000/SE Bookshelf drives:** Refer to tables 1, 2, and 3 to ensure that the Enclosed Resistor kit matches your drive.

**For AC Drives requiring both an Enclosed Resistor kit and an Enclosed Transistor kit:** Refer to tables 4, 5, and 6 to ensure that the braking kits match your drive and your braking horsepower requirements.

## Snubber Resistor Kits (M3575RH\_\_, M3575RL\_\_)

The figure below depicts the breakdown of the Snubber Resistor kit part number.



### Enclosed Resistor Braking Unit Fault Output

Enclosed Resistor Braking units have one normally-closed contact (NC) rated at 1 amp @ 24 VDC or 0.5 amp @ 115 VAC that opens on an overtemperature fault condition ( 85 C or higher).

Tables 1 and 2 show the rating data for the Enclosed Resistor Braking kits.

Table 1 – Enclosed Resistor Braking Kit Ratings (230 VAC)

Braking Kit Model Number	Braking HP	Braking Duty Cycle <sup>1</sup>	Braking Watts		Max. Amp Rating	Load Ohms (±10%)	Enclosure Type
			Peak	Continuous			
M3575RL1M M3575RL1MF	1	6% 20%	746	50 150	2	190	M4
M3575RL2M M3575RL2MF	2	6% 20%	1492	100 300	4	95	M4
M3575RL3B M3575RL3BF	3	6% 20%	1989	100 400	5	75	B4
M3575RL3M M3575RL3MF	3	6% 20%	2238	150 450	6	63	M4
M3575RL4M M3575RL4MF	4	6% 20%	2984	200 600	8	48	M7
M3575RL5B M3575RL5BF	5	6% 20%	3979	200 800	10	38	B4
M3575RL6M M3575RL6MF	6	6% 20%	4476	300 900	12	32	M7
M3575RL8B M3575RL8BF	8	6% 20%	5968	300 1200	15	25	B4
M3575RL9M M3575RL9MF	9	6% 20%	6714	450 1350	18	21	M10
M3575RL11B M3575RL11BF	11	6% 20%	7967	400 1600	20	19	B7
M3575RL16B M3575RL16BF	16	6% 20%	11936	600 2400	31	13	B7
M3575RL24B M3575RL24BF	24	6% 20%	17904	900 3600	47	8	B10

<sup>1</sup>. Maximum on-time is 60 seconds.

Table 2 – Enclosed Resistor Braking Kit Ratings (460 VAC)

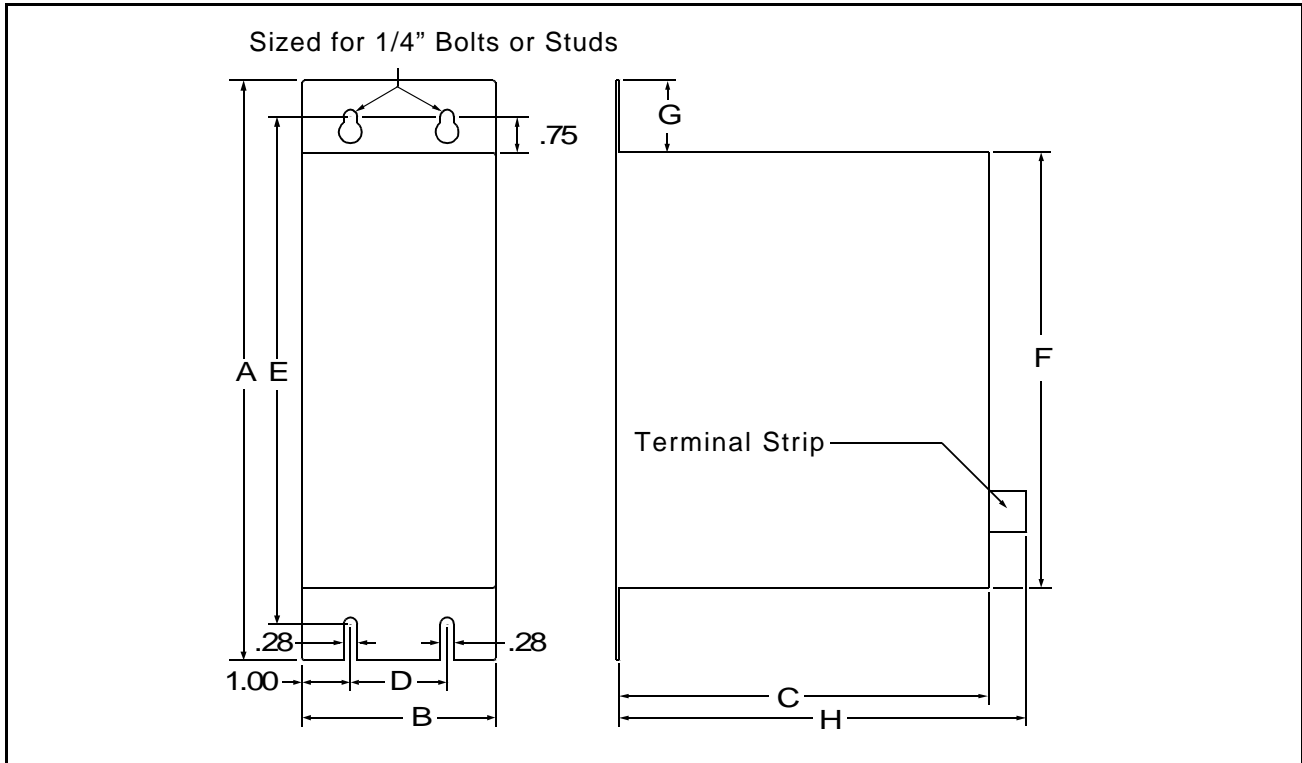
Braking Kit Model Number	Braking HP	Braking Duty Cycle <sup>1</sup>	Braking Watts		Max. Amp Rating	Load Ohms (±10%)	Enclosure Type
			Peak	Continuous			
M3575RH1M M3575RH1MF	1	6% 20%	746	50 150	1	780	M4
M3575RH2M M3575RH2MF	2	6% 20%	1492	100 300	2	390	M4
M3575RH3M M3575RH3MF	3	6% 20%	2238	150 450	3	260	M4
M3575RH4M M3575RH4MF	4	6% 20%	2984	200 600	4	195	M7
M3575RH5B M3575RH5BF	5	6% 20%	4000	250 800	5	150	B4
M3575RH6M M3575RH6MF	6	6% 20%	4476	300 900	6	130	M7
M3575RH8B M3575RH8BF	8	6% 20%	6000	350 1200	8	90	B4
M3575RH9M M3575RH9MF	9	6% 20%	6714	400 1350	9	87	M10
M3575RH11B M3575RH11BF	11	6% 20%	8000	450 1600	11	60	B7
M3575RH16B M3575RH16BF	16	6% 20%	12000	700 2400	16	45	B7
M3575RH24B M3575RH24BF	24	6% 20%	18000	1000 3600	24	30	B10
M3575RH50G1F	50	20%	40000	8000	53	14	G1
M3575RH100G2F	100	20%	80000	16000	106	7	G2
M3575RH150G3F	150	20%	120000	24000	159	5	G3

<sup>1</sup>. Maximum on-time is 60 seconds.

Table 3 shows the acceptable matches, by braking horsepower, between GV3000/SE Bookshelf drives and Enclosed Resistor Braking kits. For actual sizing information, refer to “Selecting and Sizing Snubber Braing Resistors” on page 18 of this manual.

Table 3 – Matching Enclosed Resistor Braking Kits with GV3000/SE Bookshelf Drives

GV3000/SE Bookshelf Drive Model Number	Can use snubber resistor kits rated at the following braking HP	
	Volts/Hertz	Vector
31ER/31ET4060	1 HP to 3 HP	1 HP to 2 HP
38ER/38ET4060	1 HP to 4 HP	1 HP to 3 HP
55ER/55ET4060	1 HP to 4 HP	1 HP to 4 HP
85ER/85ET4060	1 HP to 6 HP	1 HP to 6 HP
126ER/126ET4060	1 HP to 9 HP	1 HP to 6 HP
150ER/150ET4060	1 HP to 9 HP	1 HP to 8 HP
240ER/240ET4060	1 HP to 11 HP	1 HP to 11 HP
300ER/300ET4060	1 HP to 16 HP	1 HP to 16 HP
430ER/430ET4060	1 HP to 24 HP	1 HP to 24 HP



Enclosure Type	Dimension in mm (in)							
	A	B	C	D	E	F	G	H
M3	323,8 (12.75)	76,2 (3.0)	95,6 (7.70)	n/a	304,8 (12.0)	266,7 (10.5)	28,7 (1.13)	221 (8.7)
M4	323,8 (12.75)	101,6 (4.0)	95,6 (7.70)	44,5 (1.75)	304,8 (12.0)	266,7 (10.5)	28,7 (1.13)	221 (8.7)
M7	323,8 (12.75)	177,8 (7.0)	95,6 (7.70)	127 (5.0)	304,8 (12.0)	266,7 (10.5)	28,7 (1.13)	221 (8.7)
M10	323,8 (12.75)	254 (10.0)	95,6 (7.70)	203,2 (8.0)	304,8 (12.0)	266,7 (10.5)	28,7 (1.13)	221 (8.7)
B4	450,8 (17.75)	101,6 (4.0)	95,6 (7.70)	44,5 (1.75)	425,5 (16.75)	381 (15.0)	35,1 (1.38)	221 (8.7)
B7	450,8 (17.75)	177,8 (7.0)	95,6 (7.70)	127 (5.0)	425,5 (16.75)	381 (15.0)	35,1 (1.38)	233,7 (9.2)
B10	450,8 (17.75)	254 (10.0)	95,6 (7.7)	203,2 (8.0)	425,5 (16.75)	381 (15.0)	35,1 (1.38)	246,4 (9.7)

Figure 2 – Resistor Braking Kit Enclosure Dimensions

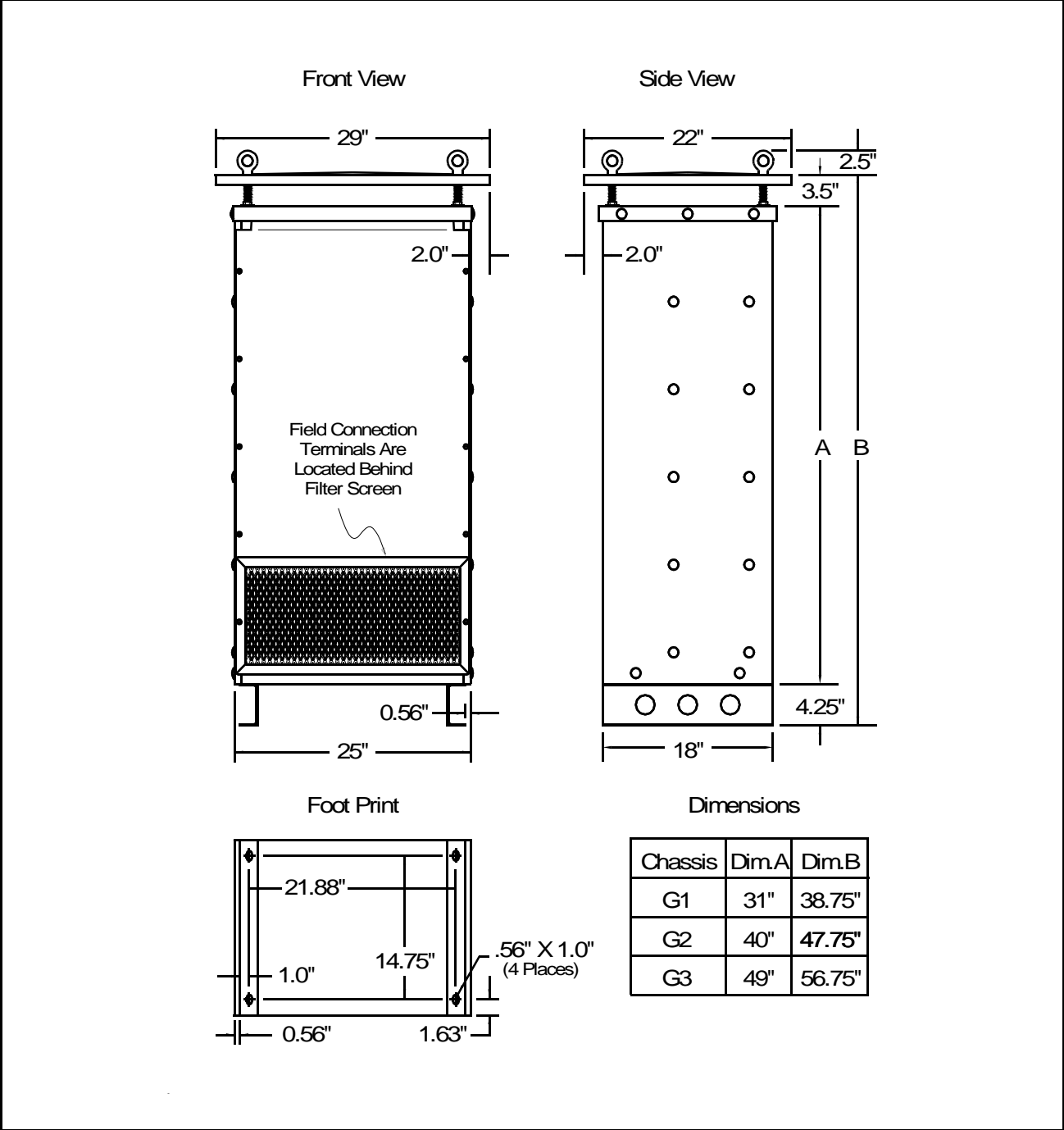


Figure 3 – Resistor Braking Kit Enclosure Dimensions (Floor-Mount Models)

## Installing the Enclosed Resistor Braking Kit



**ATTENTION:** Equipment is at line voltage when AC power is connected to the drive. The drive's DC bus capacitors retain hazardous voltages after input power has been disconnected. After disconnecting input power, wait five (5) minutes for the DC bus capacitors to discharge and then check the DC bus voltage with a voltmeter to ensure the DC bus capacitors are discharged before touching any internal components. Failure to observe this precaution could result in severe bodily injury or loss of life.

**ATTENTION:** The user is responsible for conforming with all applicable local, national, and international codes. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Choose the installation site for the Enclosed Resistor Braking Unit with the following considerations in mind:

- The unit must be mounted in a clean, dry environment. The maximum ambient air temperature should not exceed 40° C (104° F).
- The mounting surface must be non-flammable, as the unit may generate high temperatures during operation.
- The unit requires a minimum clearance of (2 inches) in all directions.

Use the following procedure to install Braking Units housed in NEMA 1 enclosures.

- Step 1. Disconnect, lock out, and tag input power to the drive. Wait five minutes for the DC bus capacitors to discharge.
- Step 2. Verify that there is no voltage at the drive's input power terminals.
- Step 3. Measure the drive's DC bus potential with a voltmeter to ensure that the DC bus capacitors have fully discharged as described in the drive's instruction manual.
- Step 4. Select a location for the Braking Unit within 8 feet of the drive where the heat generated by the snubber resistors will not affect surrounding components. Do not mount the Braking Unit under the drive or where convective air flow is restricted.
- Step 5. Mount the Braking Unit vertically with the fan at the bottom. Mounting hardware is not provided. See figure 2 or 3 for mounting dimensions.
- Step 6. Install the wiring between the drive and the Braking Unit. See figures 4, 5, and 8. Use wire that is rated at a minimum of 300 volts for 230 VAC Braking Units and 600 volts for 460 VAC Braking Units.



**ATTENTION:** It is important to use wire rated at 300 volts for 230 VAC Braking Units (600 volts for 460 VAC Braking Units) or greater because this wiring may come into contact with uninsulated 230 VAC (or 460 VAC) components. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

- Step 7. Reapply input power to the drive. Refer to the drive's instruction manual for complete start-up information.

## Braking Resistor Unit Field Connection Notes



**ATTENTION:** Only qualified personnel familiar with the construction and operation of this equipment and the hazards involved should install or service this equipment. The user is responsible for conforming with all applicable local, national, and international codes. Failure to observe these precautions could result in personal injury and/or damage to, or destruction of, the equipment.

Observe the following precautions when making field connections:

- **Do not connect the Braking Resistor Unit directly across the DC bus.** This would exceed the maximum duty cycle rating of the load. The extreme overheating generated by the load resistors under this condition could present a fire hazard in and around the resistive load module.
- Be sure the Braking Resistor Unit being connected meets the minimum load resistance requirements listed in table 1 or table 2.
- Field connection terminals used on the bookshelf style and standard enclosed style Braking Resistor units will accept a 10 AWG maximum wire size. Wires should be stripped 0.25". Crimp-style terminations are not recommended.
- Wire types and sizes should be chosen in accordance with local, national, and/or international electrical codes as well as module termination limitations to meet the voltage and current levels present for the application.

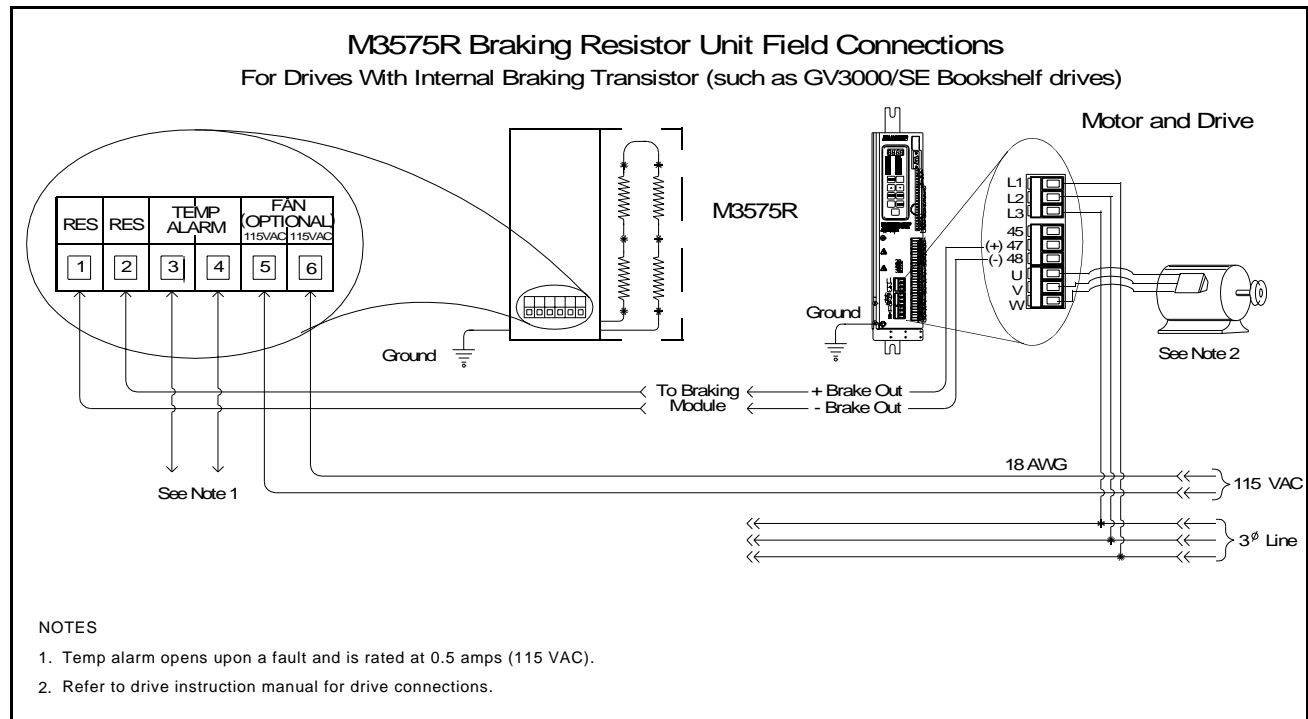


Figure 4 – Wall-Mounted Braking Resistor Unit Field Connections

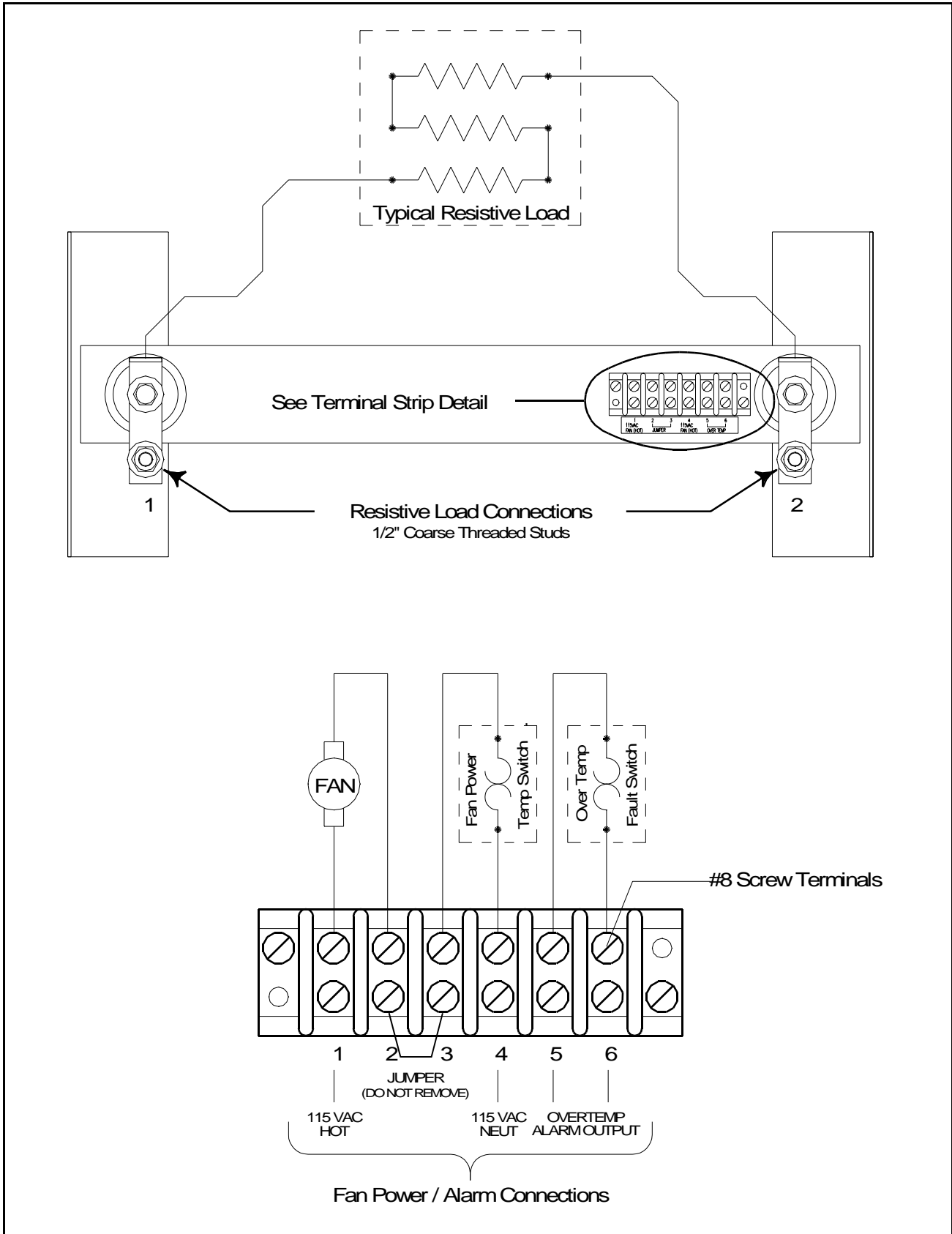
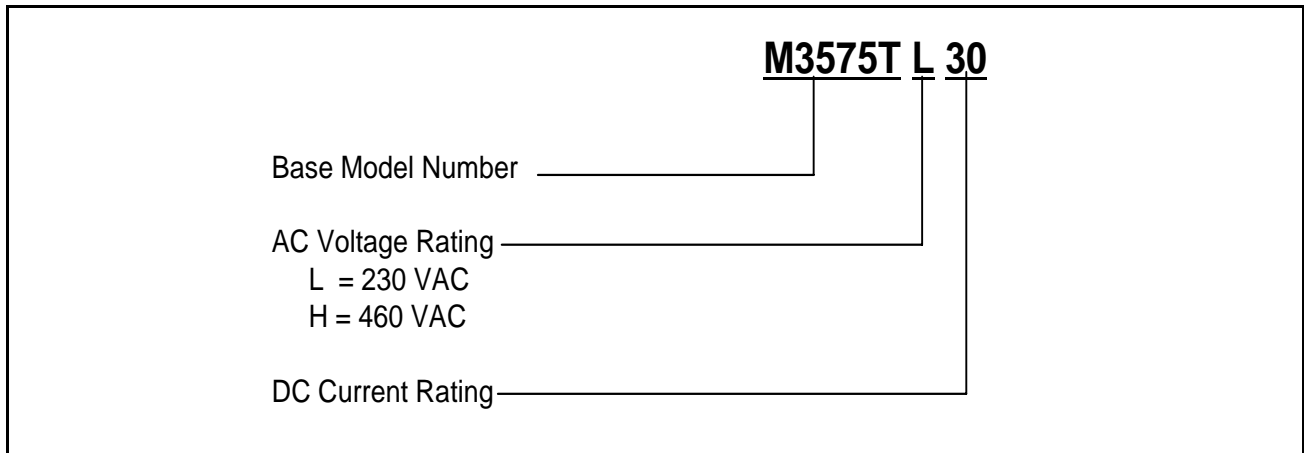


Figure 5 – Floor-Standing Grid Resistor Unit Field Connections

## Snubber Transistor Kits (M3575TH\_\_, M3575TL\_\_)

The figure below depicts the breakdown of the Enclosed Transistor kit part number.



### Enclosed Transistor Braking Unit Status Indicators

Braking units have the following status indicators:

- DC BUS: A green LED that turns on when the DC bus voltage is equal to or greater than 90 VDC.
- ACTIVE BRAKING: A red LED that turns on when the dynamic braking transistor turns on. Note that if this indicator is on continuously, the AC line voltage may be high. Use an input transformer to reduce the incoming AC line voltage to the AC drive or consult your local Rockwell Automation - Reliance Electric sales office for assistance.

### Enclosed Transistor Braking Unit Fault Outputs

Enclosed Transistor Braking units have one normally-closed contact (NC) rated at 2 amps, 125 VDC or 125 VAC that opens on the following fault conditions:

- loss of DC bus voltage
- open load
- Overtemperature
- transistor failure

Table 4 – Enclosed Transistor Kit Ratings

AC Line Voltage	Braking Kit Model Number	Amps DC RMS	Minimum Load Resistance ( $\Omega$ )	Enclosure Type
230	M3575TL15	15	25	M3
	M3575TL30	30	12.5	
	M3575TL60	60	6.25	M4
460	M3575TH15	15	50	M3
	M3575TH30	30	25	
	M3575TH75	75	10	M4
	M3575TH125	125	6	B4
	M3575TH150	150	5	
	M3575TH200	200	3.75	B7
	M3575TH300	300	2.5	

Table 5 – Matching Enclosed Transistor Kits and Enclosed Resistor Kits (230 VAC)

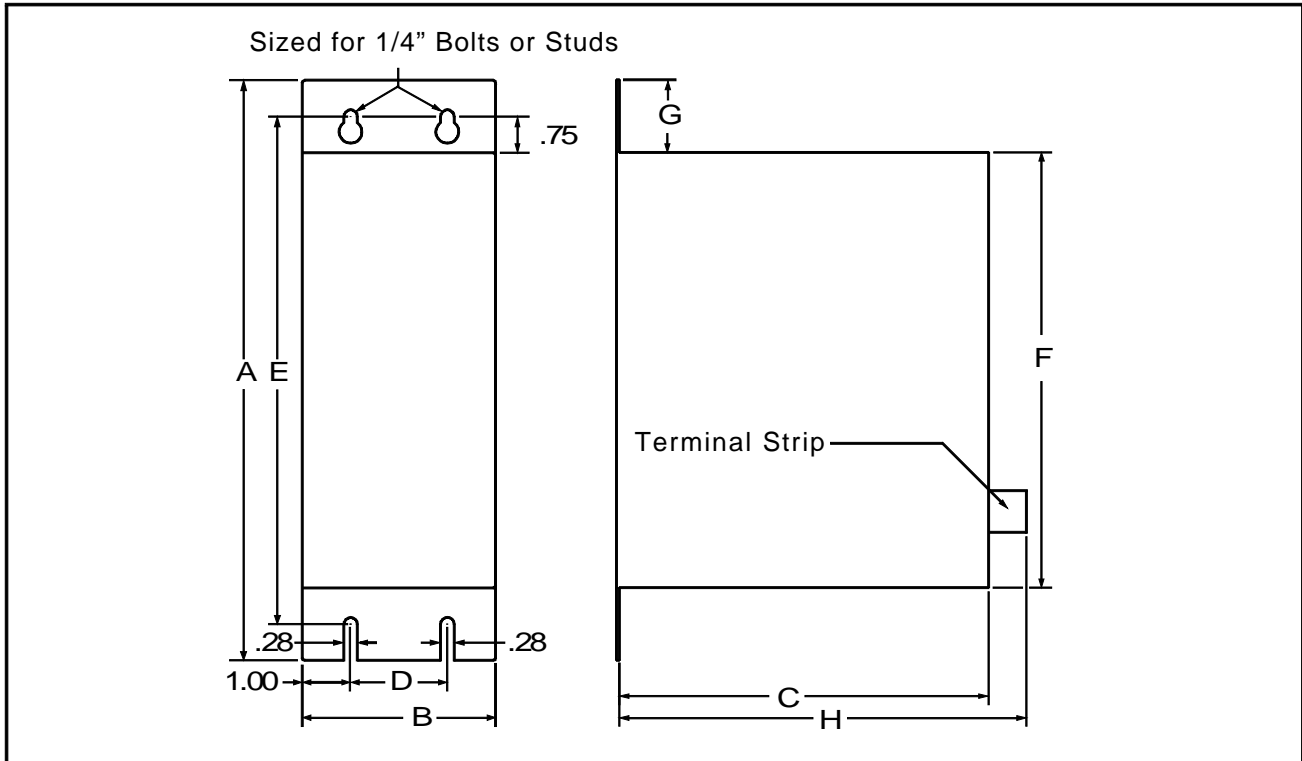
Transistor Braking Kit Model Number	Braking HP	DC Amps RMS	6% Duty Cycle <sup>1</sup>			20% Duty Cycle <sup>1</sup>			Enclosure Type
			Resistor Braking Kit Model Number	Peak Braking Watts	Continuous Braking Watts	Resistor Braking Kit Model Number	Peak Braking Watts	Continuous Braking Watts	
M3575TL15	1	2	M3575RL1M	746	50	M3575RL1MF	746	150	M4
	2	4	M3575RL2M	1492	100	M3575RL2MF	1492	300	M4
	3	6	M3575RL3M	2238	150	M3575RL3MF	2238	450	M4
	3	5	M3575RL3B	1989	100	M3575RL3BF	1989	400	B4
	4	8	M3575RL4M	2984	200	M3575RL4MF	2984	600	M7
	5	10	M3575RL5B	3979	200	M3575RL5BF	3979	800	B4
	6	12	M3575RL6M	4476	300	M3575RL6MF	4476	900	M7
	8	15	M3575RL8B	5968	300	M3575RL8BF	5968	1200	B4
M3575TL30	9	18	M3575RL9M	6714	450	M3575RL9MF	6714	1350	M10
	11	20	M3575RL11B	7967	400	M3575RL11BF	7967	1600	B7
M3575TL60	16	31	M3575RL16B	11936	600	M3575RL16BF	11936	2400	B7
	24	47	M3575RL24B	17904	900	M3575RL24BF	17904	3600	B10

<sup>1</sup>. Maximum on-time is 60 seconds

Table 6 – Matching Enclosed Transistor Kits and Enclosed Resistor Kits (460 VAC)

Transistor Braking Kit Model Number	Braking HP	DC Amps RMS	6% Duty Cycle <sup>1</sup>			20% Duty Cycle <sup>1</sup>			Enclosure Type
			Resistor Braking Kit Model Number	Peak Braking Watts	Continuous Braking Watts	Resistor Braking Kit Model Number	Peak Braking Watts	Continuous Braking Watts	
M3575TH15	1	1	M3575RH1M	746	50	M3575RH1MF	746	150	M4
	2	2	M3575RH2M	1492	100	M3575RH2MF	1492	300	M4
	3	3	M3575RH3M	2238	150	M3575RH3MF	2238	450	M4
	4	4	M3575RH4M	2984	200	M3575RH4MF	2984	600	M7
	5	5	M3575RH5B	4000	250	M3575RH5BF	4000	800	B4
	6	6	M3575RH6M	4476	300	M3575RH6MF	4476	900	M7
	8	8	M3575RH8B	6000	350	M3575RH8BF	6000	1200	B4
	9	9	M3575RH9M	6714	400	M3575RH9MF	6714	1350	M10
	11	11	M3575RH11B	8000	450	M3575RH11BF	8000	1600	B7
M3575TH30	16	16	M3575RH16B	12000	700	M3575RH16BF	12000	2400	B7
	24	24	M3575RH24B	18000	1000	M3575RH24BF	18000	3600	B10
M3575TH75	50	53	—	—	—	M3575RH50G1F	40000	8000	G1
M3575TH125	100	106	—	—	—	M3575RH100G2F	80000	16000	G2
M3575TH200	150	159	—	—	—	M3575RH150G3F	120000	24000	G3

<sup>1</sup>. Maximum on-time is 60 seconds



Enclosure Type	Dimension in mm (in)							
	A	B	C	D	E	F	G	H
M3	323,8 (12.75)	76,2 (3.0)	95,6 (7.70)	n/a	304,8 (12.0)	266,7 (10.5)	28,7 (1.13)	221 (8.7)
M4	323,8 (12.75)	101,6 (4.0)	95,6 (7.70)	44,5 (1.75)	304,8 (12.0)	266,7 (10.5)	28,7 (1.13)	221 (8.7)
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B4	450,8 (17.75)	101,6 (4.0)	95,6 (7.70)	44,5 (1.75)	425,5 (16.75)	381 (15.0)	35,1 (1.38)	221 (8.7)
B7	450,8 (17.75)	177,8 (7.0)	95,6 (7.70)	127 (5.0)	425,5 (16.75)	381 (15.0)	35,1 (1.38)	233,7 (9.2)
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Figure 6 – Enclosed Transistor Braking Kit Enclosure Dimensions

## Installing the Enclosed Transistor Braking Kit



**ATTENTION:** Equipment is at line voltage when AC power is connected to the drive. The drive's DC bus capacitors retain hazardous voltages after input power has been disconnected. After disconnecting input power, wait five (5) minutes for the DC bus capacitors to discharge and then check the DC bus voltage with a voltmeter to ensure the DC bus capacitors are discharged before touching any internal components. Failure to observe this precaution could result in severe bodily injury or loss of life.

**ATTENTION:** The user is responsible for conforming with all applicable local, national, and international codes. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

Choose the installation site for the Enclosed Transistor Braking Unit with the following considerations in mind:

- The unit must be mounted in a clean, dry environment. The maximum ambient air temperature should not exceed 40° C (104° F).
- The unit requires a minimum clearance of (2 inches) in all directions.

Use the following procedure to install Braking Units housed in NEMA 1 enclosures.

- Step 1. Disconnect, lock out, and tag input power to the drive. Wait five minutes for the DC bus capacitors to discharge.
- Step 2. Verify that there is no voltage at the drive's input power terminals.
- Step 3. Measure the drive's DC bus potential with a voltmeter to ensure that the DC bus capacitors have fully discharged as described in the drive's instruction manual.
- Step 4. Select a location for the Braking Unit within 8 feet of the drive where the heat generated by the snubber resistors will not affect surrounding components. Do not mount the Braking Unit under the drive or where convective air flow is restricted.
- Step 5. Mount the Braking Unit vertically with the fan at the bottom. Mounting hardware is not provided. See figure 6 for mounting dimensions.
- Step 6. Install the wiring between the drive and the Braking Unit. See figures 7 and 8. Use wire that is rated at a minimum of 300 volts for 230 VAC Braking Units and 600 volts for 460 VAC Braking Units.



**ATTENTION:** It is important to use wire rated at 300 volts for 230 VAC Braking Units (600 volts for 460 VAC Braking Units) or greater because this wiring may come into contact with uninsulated 230 VAC (or 460 VAC) components. Failure to observe this precaution could result in damage to, or destruction of, the equipment.

- Step 7. Reapply input power to the drive. Refer to the drive's instruction manual for complete start-up information.

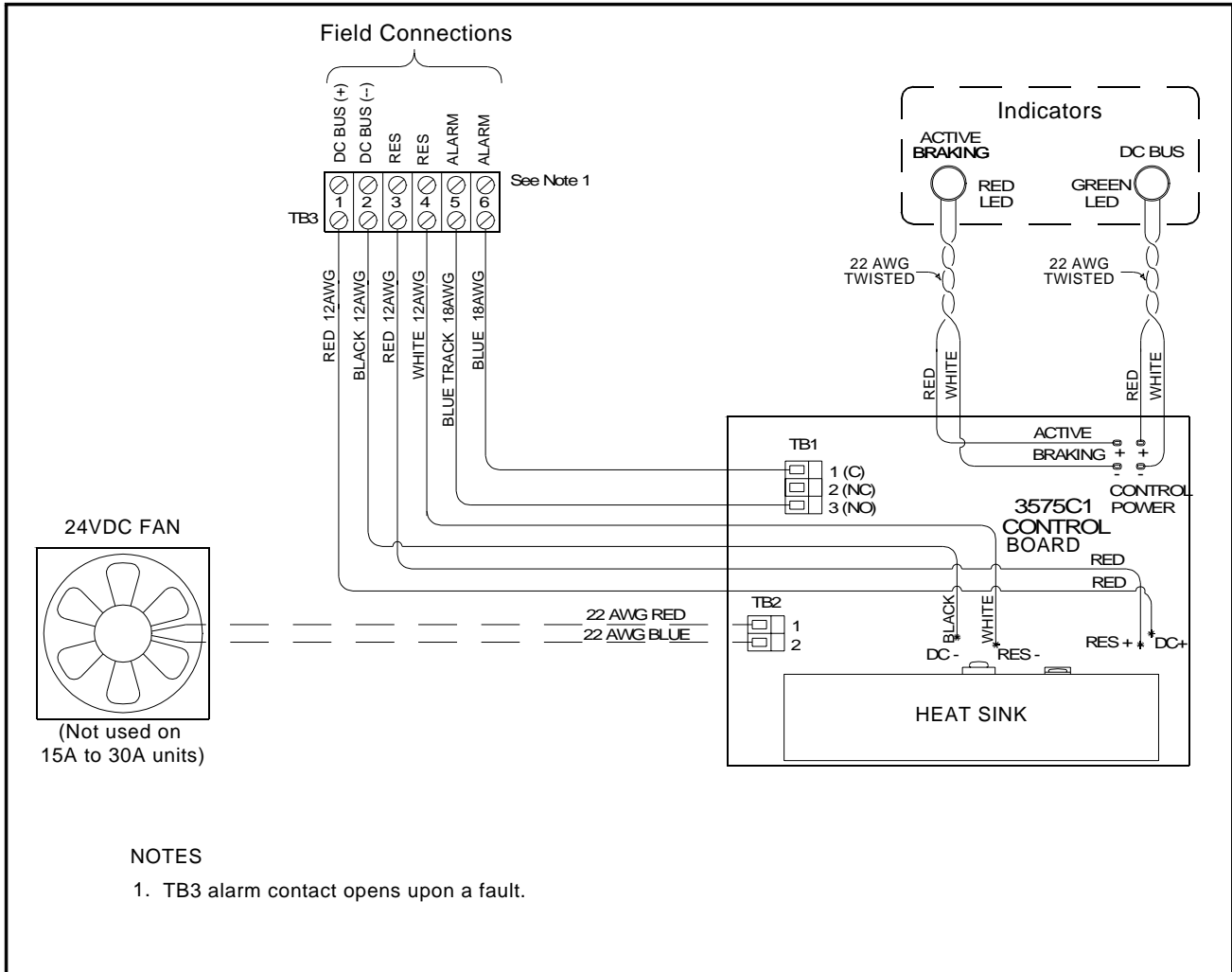


Figure 7 – Transistor Braking Unit Wiring Diagram

## Braking Transistor Unit Field Connection Notes



**ATTENTION:** Only qualified personnel familiar with the construction and operation of this equipment and the hazards involved should install or service this equipment. The user is responsible for conforming with all applicable local, national, and international codes. Failure to observe these precautions could result in personal injury and/or damage to, or destruction of, the equipment.

Observe the following precautions when making field connections:

- The maximum wire sizes accepted by the Braking Transistor Unit field connection terminals are as follows:

Model Number		Max Wire Size
M3575TL15	M3575TH15	10 AWG
M3575TL30	M3575TH30	
M3575TL60	M3575TH75	6 AWG
M3575TH125	M3575TH200	3/8" ring lug
M3575TH150	M3575TH300	

- Minimum load resistance requirements listed in tables 1 and 2 must be followed when selecting a resistive load for use with the Braking Transistor Unit.

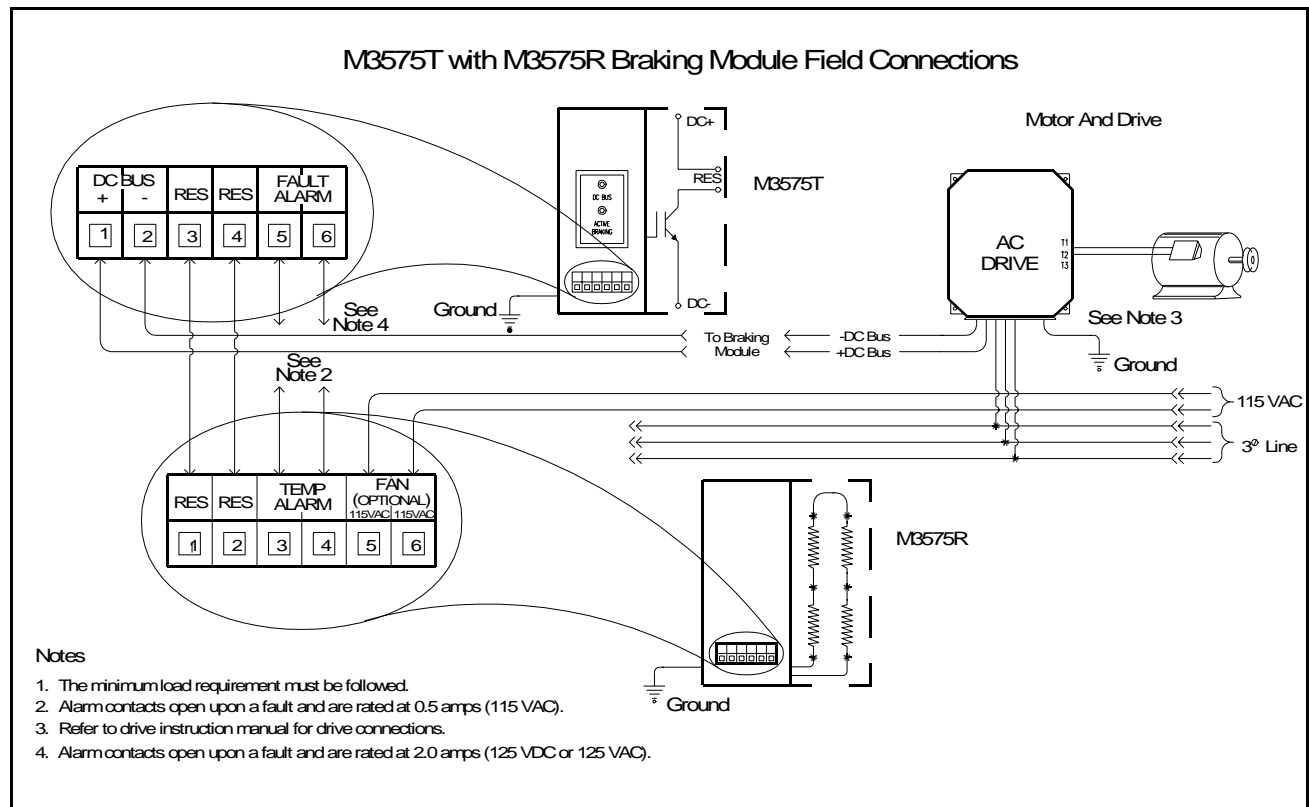


Figure 8 – Braking Transistor and Braking Resistor Unit Field Connections

## Selecting and Sizing Snubber Braking Resistors

Continuous duty snubber braking resistors must be selected for the transistor switching circuit versions of the Braking unit.

Use the following procedure to select the snubber resistors:

Step 1. Calculate the regenerated power ( $P_{ave}$ ) from the load and the pattern of operation. See figure 9.

$$P_{ave} = 0.5 \times P_p \times t/T$$

Where:  $P_p$  = Peak Power

$t$  = Rise/Fall Time

$T$  = Period

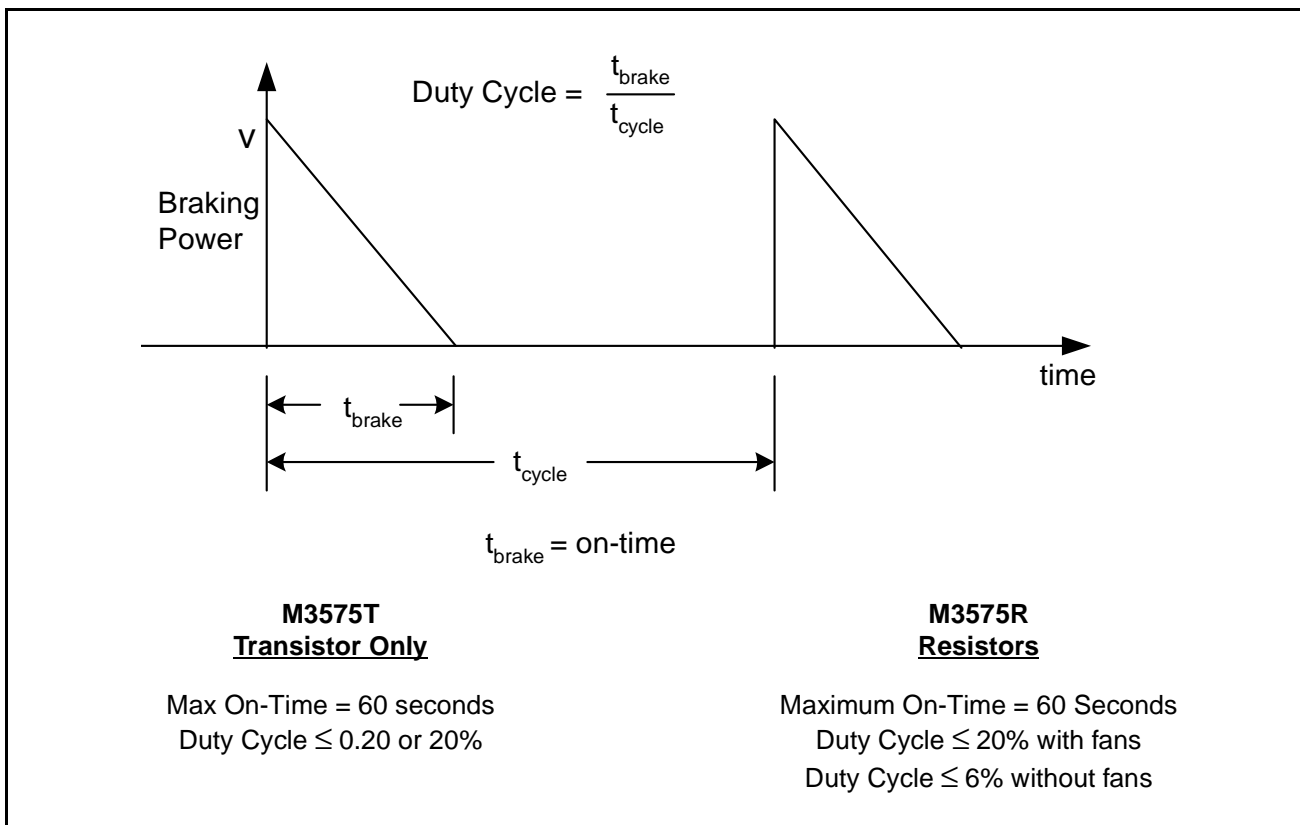


Figure 9 – Braking Unit Duty Cycles

Step 2. Calculate the power dissipation of the resistor ( $P_d$ ) by deducting 15% of the motor's rated output (energy dissipation by the machine and the motor) from the regenerated power ( $P_{ave}$ ).

Step 3. Use the following formula to determine the required resistor power rating ( $P_r$ ) in watts:

$$P_r = (3 \text{ to } 4) \times P_d \text{ watts}$$

## Troubleshooting

If a problem occurs on start-up or during normal operation, refer to the table below.

Problem	Corrective Action
<b>Resistor Braking Unit</b>	
Drive trips on overvoltage or self-limits its decel rate	<ul style="list-style-type: none"> <li>– Ensure that the resistive load module is properly connected to the drive's braking control circuitry. This can be a chopper module internal to the drive or an external braking kit.</li> <li>– Verify the ohmic value of the resistive load (see table 1).</li> <li>– Ensure that the resistive load is adequately sized for the application.</li> </ul>
The cooling fan doesn't turn on	<ul style="list-style-type: none"> <li>– Verify that temperature of load module exceeds 45° C.</li> <li>– Verify that 115 VAC is present for fan voltage.</li> </ul>
Temp alarm contact is open indicating an overtemp fault is present	<ul style="list-style-type: none"> <li>– If the fault output is open and the chassis is hot, allow the unit to cool and recheck the fault output; it should return to its normally closed state.</li> <li>– If the fault output is open and the chassis is cool, replace the unit.</li> </ul>
Temp alarm contact does not open on overtemp condition	<ul style="list-style-type: none"> <li>– If the fault output remains closed and the chassis temperature exceeds 85° C, disconnect the load module and allow the unit to cool. Once the chassis has cooled, replace the unit.</li> </ul>
<b>Transistor Braking Unit</b>	
Green DC Bus Power LED does not come on	<ul style="list-style-type: none"> <li>– Ensure proper DC bus voltage at the unit's input terminals. If the proper bus voltage is not present, ensure that the voltage rating of the unit matches the drive.</li> </ul>
Red Active Braking LED stays on or flashes during motoring operation	<ul style="list-style-type: none"> <li>– Ensure that the voltage rating of the unit matches the drive.</li> <li>– If line voltage is abnormally high or low, the unit may require special calibration adjustments. Contact Reliance for assistance.</li> </ul>
Fault output on unit is open indicating a fault is present	<ul style="list-style-type: none"> <li>– If the fault output is open and the chassis is hot, allow the unit to cool and recheck the fault output; it should return to its normally closed state.</li> <li>– If the fault output is open and the chassis is cool, check the resistor path to make sure it is not open.</li> <li>– Remove DC bus power from the unit and then restore power. If the fault output remains open, replace the unit.</li> </ul>
Drive trips on overvoltage or self-limits its decel rate	<ul style="list-style-type: none"> <li>– Ensure that the green DC Bus Power LED is on.</li> <li>– Ensure that the proper resistive load value is connected to the unit and that the maximum current rating is not exceeded.</li> <li>– Ensure the unit is not exceeding the current rating. The braking IGBT will shut down on overcurrent conditions. Check for a fault output.</li> </ul>

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